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THE managers of the Pennsylvania Hospital in Philadelphia have taken steps to add to the institution a clinical laboratory, the funds being provided by a bequest of \$50,000 by the late Josephine M. Ayer, of Philadelphia, supplemented by a gift of \$25,000 from her son, Fred. F. Ayer.

#### UNIVERSITY AND EDUCATIONAL NEWS.

THE New York University Medical College and the Bellevue Medical College will be consolidated under the name 'The University and the Bellevue Hospital Medical College.' It will be remembered that the negotiations for this union failed a year ago at the last moment, but the resignation of a portion of the faculty of the New York University Medical College to form a new school under the auspices of Cornell University has now led to the consolidation.

THE Trustees of Colby University have made a contract for the construction of a chemical laboratory to be built of stone and brick and to cost \$30,000.

THE will of the late Felix R. Bonnet, of Pittsburgh, Pa., provides that, upon the death of his widow, \$300,000 shall go to the Western Pennsylvania University for the endowment of scholarships.

PRESIDENT F. P. GRAVES, of the University of Wyoming, has been elected President of the University of Washington.

THE following promotions and appointments have been made by the corporation of Yale University: Assistant Professor Sneath was promoted to a full professorship of philosophy in the College; Dr. Philip E. Browning, promoted from an instructorship to an assistant professorship in chemistry; Dr. E. W. Scripture was given the title of director of the psychological laboratory; E. M. Weier, B.A., 1895, was appointed assistant in the same laboratory; George Grant McCurdy, B.A., Harvard, 1893, was appointed to a new instructorship in prehistoric anthropology in the Graduate School; H. E. Gregory, B.A., 1896, instructor in physical geography.

THE University of Dublin has elected to the chair of mental and moral philosophy Mr. Swift

Paine Johnston, who is said to be an American citizen.

MR. H. YALE OLDHAM has been appointed reader in geography in Cambridge University.

#### DISCUSSION AND CORRESPONDENCE.

##### 'A PRECISE CRITERION OF SPECIES.'

TO THE EDITOR OF SCIENCE: In the issue of this JOURNAL for May 20, 1898 (N. S. vii., No. 177) is a joint contribution, under the above title, by Messrs. C. B. Davenport and J. W. Blankinship, in which Mr. Davenport, under the subheading 'A. The General Method,' says: "What is needed is a method of precisely defining the degree of isolation and the degree of divergence necessary for distinct species." To establish such a method, and to define 'the degree of isolation and the degree of divergence necessary for distinct species,' is the grand task here undertaken—and accomplished, to the satisfaction apparently of, at least, the author of the paper; and his diagrams of curves and his mathematical formulæ are very interesting and very suggestive, so far as they go. But the conclusions based thereon, and the methods by which they are reached, display an extraordinary lack of practical experience with the actual conditions of the problem in hand. No one duly appreciating the conditions to be met would ever undertake to formulate a 'method' on such imperfect data as he has employed for the 'Determination of the Line between Species and Varieties,' since their utter insufficiency is obvious, one would suppose, to any one at all experienced in this field of research.

"The question arises," says Mr. Davenport, "whether it would not be necessary to draw curves for many characters." He answers: "Practically it will not be necessary, for confluent species are usually separated chiefly by one most distinctive character." Unfortunately, this is not the case, but by a combination of slight differences along a number of distinct lines. But suppose it were as Mr. Davenport assumes, and the most distinctive character was one of color, involving not only the prevailing tint, but coincidently variations in

the markings of particular parts or areas. Generally, it is not only this, but color differences combined with variations either in general size or in the size of special parts or organs, in which the variations of different parts are sometimes in opposite directions. If the author had worked directly from large series of specimens, instead of taking data tabulated by others relating to the single character of size, it is pretty safe to say that the paper here under notice would not have been written.

In the case of *Zapus* there is no reason for doubt in respect to the status of the two forms. They present as clear and well pronounced evidence of specific distinctness as could well be looked for between congeneric forms. In the case of *Scalops* the curves of differentiation are based on the single character of general size, the length of the skull being taken as the basis. Other characters of perhaps equal or even greater importance, as the increase in the size of the teeth with decrease in skull length or in general size, the relative length of the tail and marked differences in color are ignored, perhaps because the differences in these features are not easily reducible to 'quantitative expressions.' But taking size alone, what kind of a 'method' is it that attempts to determine quantitative difference, say between *Scalops aquaticus* from Massachusetts, Connecticut and New York and *Scalops machrinus* from Minnesota, Illinois and Iowa by taking in the first case a few specimens at irregular and infrequent intervals from Cape Cod to Charleston, S. C., and in the other in a similar way from Minnesota to Louisiana? In either case the difference in size is greater between specimens from the northern and the southern points in either series than between specimens from corresponding points in latitude between *S. aquaticus* and *S. machrinus*! Mr. Davenport's Fig. 8 thus shows nothing of any value whatever. The quantitative study of variation is a problem of great interest and importance, but this is not the way to go about it. The ideal way, and one which would be profitable in results, would be to take a sufficiently large series of adult specimens, say in the case of *Scalops* of not less than 20 to 50 from judiciously selected localities not more than 100 miles

apart, along at least two lines, the one meridional, the other on a parallel of latitude (due regard in each case being had for differences of elevation), and subject each available character to quantitative analysis. Were this done on a series of such intersecting lines extending throughout the ranges of all the forms of a genus the results might then be expressed in curves that would reflect actual facts and throw important light on the status and real relationships of all the forms involved. It might be well worth doing, at least in the case of a few groups, for the general bearing such results would have on the problems of evolution; but the millenium of a precise knowledge of species and subspecies for any class of animals—say of North American mammals—will not arrive in our day if we must wait for the production of that delightful result by the process of quantitative determination of character variation. The work and expense involved is too great, and long before final results would be available the methods now in vogue of studying comparatively large series from as many localities as possible will probably have already covered and decided most of the points such an elaborate system might be properly expected to establish.

J. A. ALLEN.

#### A NECESSARY CORRECTION.

TO THE EDITOR OF SCIENCE: In an article claiming to be a review of 'The Living Substance' (Supplement to *Journal of Morphology*), which appeared in *Nature* recently, the reviewer, F. A. D., says: "*The authoress of this wordy treatise informs us (p. 173) that she started from a neutral position with regard to Bütschli's vesicular theory, or even with a bias against it. Now, however, having become the most ardent of converts, she proceeds, with the proverbial zeal of a proselyte, to carry the original doctrine to extremes. Not content with proclaiming the existence of foams undreamt of by Bütschli—'wheels within wheels' ad infinitum—she utters what amounts to a denunciation of all previous statements of biological fact and theory as misleading and inadequate, and urges in effect that the whole science of life needs recasting from the new point of view.*"